



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/733,928	12/10/2003	Tomoo Yamamoto	16869G-100000US	8608
20350	7590	09/21/2005		
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			EXAMINER RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/733,928

Applicant(s)

YAMAMOTO ET AL.

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-16, 19 and 30-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14, 16 and 19 is/are allowed.
- 6) ☒ Claim(s) 15, 30, 33 and 34 is/are rejected.
- 7) ☒ Claim(s) 31 and 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 33-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 33-34 recite the limitation "the first layer" in line 2 of each claim. There is insufficient antecedent basis for this limitation in the claim. It is unclear which one of the "first" layers described in claim 15 this limitation refers to.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 1773

4. Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Tomiyasu et al. (US 2002/0119350)

Tomiyasu et al. disclose a magnetic recording medium having an "initial growth film" of a CrTi layer formed on a substrate and corresponding to the claimed "first seed layer." The remaining non-initial growth portion of the CrTi corresponds to the claimed "second seed layer", a "first underlayer" formed from NiAl, CoAl, NiTi, or CoTi, a Cr alloy "second underlayer", and a magnetic recording layer thereon (see paragraphs 29-30, 35-36, 38, 45, 67-68, 90). Note that paragraph 30 discusses the "initial growth film" of a Cr alloy film containing Ti. The examiner's intent in specifying that the CrTi layer of Tomiyasu has an initial growth portion and a non-initial growth portion is to illustrate that the CrTi layer taught therein has different strata within the layer which correspond to the seed layers set forth in the claims. That is to say, the CrTi layer taught by Tomiyasu is actually multiple atom layers of CrTi deposited to form the full thickness useful for the invention. It is the examiner's contention that these multiple atom layers taught by Tomiyasu read on the broadly claimed first and second seed layers, both formed from CrTi.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1773

6. Claim 30 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomiyasu et al. (US 2002/0119350).

Tomiyasu et al. disclose all of the limitations of the claims as detailed above, except for the claimed range of Cr in the first seed layer (35-70 at%).

Tomiyasu teach that the upper layer, corresponding to the claimed first and second seed layers, is formed from a Cr alloy which contains an element such as Ti in an amount of 10-50 at% and may also contain an additional element in an amount of 10 at% or less (para. 30). Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to choose an amount of Cr from within the broadly disclosed range of 40 at% (100-50-10) to 90 at% (100-10-0) since one of ordinary skill in the art would recognize all values within this range as being functionally equivalent.

#### ***Allowable Subject Matter***

7. Claims 14, 16, and 19 are allowable over the closest prior art to Bian et al. and Tomiyasu et al. Neither reference teaches the claimed combination of layers having a TiAl layer beneath a Cr alloy layer containing Ti, Mo, or W. Bian et al. teach the use of a TiAl but in combination with an overlying RuAl layer. Tomiyasu et al. teach a CrTi seed layer but fail to teach or suggest the use of an underlying TiAl layer. With respect to claim 19, the closest prior art to Tomiyasu et al. fails to teach or suggest the claimed thickness for the second seedlayer.

8. Claims 31-32 are objected to as being dependent upon a rejected claim but would otherwise be allowable if rewritten in independent form. The closest prior art to Tomiyasu et al. fails to teach or suggest the claimed thickness for the second seedlayer.

***Response to Arguments***

9. Applicant's arguments filed 7/5/05 have been fully considered but they are not persuasive.

Applicant argues that the claimed combination of a first and second seedlayer exhibits a strong orientation of the easy magnetization axis not mentioned by the prior art. However, the aforementioned feature is not claimed. Nor is there any data of record to show the presence of an unexpected property or improvement commensurate in scope with the claimed invention. Thus, this argument is not persuasive.

Applicant also argues that Tomiyasu et al. teaches only a single layer of CrTi which does not correspond to the claimed first seed layer and second seed layer comprising a Cr alloy. Applicant maintains that the CrTi layer taught by Tomiyasu et al. *is* the initial growth film described in the reference. Applicant maintains that there is no non-initial growth portion as alleged by the examiner.

The Examiner maintains that the CrTi structure taught by Tomiyasu et al. satisfies the claim limitation requiring a first seed layer which may be formed from CrTi and a second seed layer formed from CrTi. The examiner's intent in specifying that the CrTi layer of Tomiyasu has an initial growth portion and a non-initial growth portion was to illustrate that the CrTi layer taught therein has different strata within the layer which correspond to the seed layers set forth in the claims. That is to say, the CrTi layer taught by Tomiyasu is actually multiple atom layers of CrTi deposited to form the full thickness useful for the invention. It is the examiner's contention that these multiple atom layers taught by Tomiyasu read on the broadly claimed first and second

Art Unit: 1773

seed layers, both formed from CrTi. It is suggested that Applicant consider further limiting the composition and/or structure of one of both of the claimed seed layers in order to distinguish over Tomiyasu.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Holly Rickman  
Primary Examiner  
Art Unit 1773